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(54) Title: GENE ENCODING RESISTANCE TO ACETOLACTATE SYNTHASE-INHIBITING HERBICIDES

(57) Abstract: A mutant acetolactate synthase (ALS) enzyme that confers cross-resistance to all sulfonylurea, imidazolinone, pyrimidinyl oxybenzoate, triazolopyrimidine and sulfonylamino-carbonyl-triazolinone herbicides is provided. The mutant enzyme contains an aspartic acid to glutamic acid substitution mutation at a newly identified conserved region of the ALS enzyme. A gene encoding the enzyme is also provided, as are transgenic plants that have been genetically engineered to contain and express the gene. The transgenic plants are cross-resistant to sulfonylurea, imidazolinone, pyrimidinyl oxybenzoate, triazolopyrimidine and sulfonylamino-carbonyl-triazolinone herbicides.